



EM 2140

Dual Source Energy Meter



Aux. Supply



True RMS



Auto Scroll/
Favourite Page



Auto or Fix



Output



Masibus EM 2140 is an easy-to-use, low cost electrical energy meter that offers all the basic measurement capabilities required for monitoring an electrical installation.

EM 2140 has 8 digit bright 0.36" LED display for superior readability in poor lighting conditions. LED indication has been provided for phase reversal as well as for all time healthy phase indication with optional DG sense indication.

EM 2140 is available in flush panel mount enclosure having front panel keys for easy set up. EM 2140 has class 1.0 accuracy as per IS 13779/IEC 62053-21.

The CT/PT ratio and installation type is site selectable, making the meter possible to be used in various types of three phase installations.

More than a basic metering, it provides RS485 port with Modbus-RTU protocol as a standard feature & options of relay/ pulse output.

EM 2140 has EB/DG dual source energy measurement option for measurement of energy through Electricity Board or Diesel Generator with isolated pulse or relay output (with high or low side) option.

EM 2140 provides energy measurement along with ON hour & RUN (Load) hour, thus helping to measure and control energy cost.

EM 2140 provides field selectable option of auto scalable decimal point display or fix decimal point display for displaying energy readings

Meter stores energy and programmed parameters into its non-volatile permanent memory.

Features

- Accuracy class 1.0 as per IS 13779/ IEC 62053-21
- Compact flush panel mounting.
- Field programmable CT/PT ratio.
- True RMS measurement.
- Ultra bright 8 digit LED display 0.36" with auto scaling capability.
- Universal power supply.
- Optional pulse output / relay output.
- Optional EB/DG dual source input.
- Isolated RS 485 (Modbus-RTU protocol).
- 4 keys for configuration.
- Password protection for set parameters.
- Permanent memory based energy storing along with other parameters like ON hour, load hour and power interruption count.

Applications

- Electrical panels
- DG set panels
- Energy Management System(EMS) & energy audit
- Distribution systems
- HV & LV switch gear panels
- Control & relay panels
- Motor control center panels
- Power control center panels
- Process control
- Original Equipment Manufacturers (OEMs)
- HVAC & building management system
- Remote monitoring

TECHNICAL SPECIFICATIONS

Meter Type		Output	
3Ph4W/ 3Ph3W (site selectable)		Communication Output RS485	
Input		Interface	RS485
		Parity	None, Odd, Even (Selectable)
Voltage		Baud Rate	9600, 19200, 38400 (Selectable)
		Start bit	1
Direct Voltage	20V to 350V (L-N) or 34V to 620V (L-L) @ 240V Nominal Voltage	Stop bit	1, 2 (Selectable)
PT Secondary (Nominal Voltage)	63.5V L-N to 240V L-N Configurable for 3Ph3W or 3Ph4W system	Protocol	Modbus-RTU
Burden	0.5VA per phase	Relay Output (Optional in lieu of pulse o/p)	
PT Ratio	1 to 9999 Programmable	AC/DC Rating	AC - 250V, 5A, DC - ±30V, 5A
Overload	1.2 x Nominal Voltage (Continuous) 1.5 x Nominal Voltage (3 sec)	Relay Set Point	High Side or Low Side Option
Current		Relay O/P Parameters [Field Selectable]	Phase Volt / Avg. Volt / Phase Current / Avg. Current / Sys. Freq. / Phase Watt / Sys. Watt / Phase VAR / Sys. VAR / Phase VA / Sys. VA / Phase PF / Sys. PF
		Relay Contact Type	SPNO [Factory Default], SPNC [Contact Factory]
Direct Current	0.02A to 6A	Pulse Output (Optional in lieu of relay o/p)	
Secondary Current	1 to 5A	Type	WH
Burden	0.25VA per phase	Pulse rate	3600 pulses per Energy
CT Ratio	1 to 9999 Programmable	Pulse duration	40 mSec ± 10%
Overload	For 5A CT: 8A (Continuous) For 1A CT: 2A (Continuous) 50A (3sec)	Output Type	Open collector [External Excitation Required]
Starting Current	10 mA	Rating	24 VDC @ 20 mA
Frequency	45 to 65 Hz	Auxiliary Power Supply	
DG Sense	100-265VAC (to select DG Energy)	Power Supply	85-265VAC, 50/60Hz or 100-300VDC
Display & Keys		Burden	<3VA
Display	1 line 8 digit 0.36" [9.144 mm], 7-segment LED Phase healthy & reversal indication Various energy parameters [Wh, VARh, VAh, DG]	Isolation (Withstanding voltage) Between primary terminals* and secondary terminals**: At least 2000 V AC for 1 minute Between secondary terminals*: At least 2000 V AC for 1 minute Between secondary terminals**: At least 2000 V AC for 1 minute * Primary terminals indicate Aux Supply, voltage i/p, current i/p & EB/DG input ** Secondary terminals indicate Communication o/p and Pulse/Relay o/p Insulation resistance: 20MΩ or more at 500 V DC between terminals	
Status LED Indication	Kilo & Mega Indication Alarm and RS485 communication Energy Pulse output	Environmental	
Keys	PROG/Enter, Esc/Shift, UP, Down	Operating temperature	0 to 55 °C
Calculated Parameters		Storage temperature	-10 to 70°C
Over Display & Modbus		Relative Humidity	30 to 95% RH non-condensing
Total Energy	Active Energy, Energy Overflow Count	Warm up time	5 minutes
EB - Electricity Board	Reactive Energy, Energy Overflow Count	Physical	
DG - Diesel Generator	Apparent Energy, Energy Overflow Count	Mounting Type	Panel mount
Over Modbus only		Size (in mm)	100 (H) x 100(W) x 55 (D)
Voltage	L1-L2, L2-L3, L1-L3 and Average (3Ph3W & 3Ph4W) L1-N, L2-N, L3-N & average (1Ph & 3Ph4W)	Front Bezel (in mm)	100 (H) x 100(W)
Current	All phase currents & their average	Panel cutout (in mm)	92 (H) x 92(W)
PF	Phase wise and System PF, Phase Angle	Depth behind panel	50 mm
Frequency	System Frequency	Material	ABS
Power (Phase wise & Total)	Active Power Reactive Power Apparent Power	Accessory	2 Panel mount clamps
Special Features		Weight	0.3 Kg
ON Hour	up to 65000 hours Recording	Enclosure Protection	IP50 front fascia; Overall IP20
EB - Load Hour	up to 65000 PINTR counts	Terminal & Cable Size	Barrier Type terminal Cable Size [3 mm ²]
DG- Load Hour	up to 65000 PINTR counts		
PINTR Power Interruption count	up to 65000 PINTR counts		
% Unbalance	Voltage Unbalance % & Current Unbalance %	Dual Source Energy Measurement on 3Ph4W System	
Accuracy			
Voltage	±0.5% of reading		
Current	±0.5% of reading		
Frequency	±0.5% of reading		
Power Factor	±0.5% of FS		
Active Power* (≥0.02 of Ib)	±1.0% of reading ± 0.01% of FS		
Reactive Power* (≥0.02 of Ib)	±2.0% of reading ± 0.01% of FS		
Apparent Power* (≥0.02 of Ib)	±2.0% of reading ± 0.02% of FS		
Active Energy*	Class 1.0 as per IS 13779/ IEC 62053-21		
Reactive Energy*	Class 2.0 as per IS 13779		
Apparent Energy*	Class 2.0		
(*PF 0.5 Lag to 1.0 to 0.8 Lead Applicable for Power & Energy Parameter)			

Ordering code									
Model	Accuracy	Communication	Dual source	Output					
EM 2140	S Class 1.0	1 RS485 Modbus	N None	N None					
			1 DG	1 Pulse Output					
				2 Relay Output					

Head Office: Masibus Automation And Instrumentation Pvt. Ltd.
B-30, GIDC Electronics Estate, Sector-25, Gandhinagar-382044, Gujarat, India.
Tel: +91 79 23287275-79, Fax: +91 79 23287281.
E-mail: sales@masibus.com, Web: www.masibus.com

All specifications are subject to change without notice due to continuous improvements.
Doc. Ref. EM2140/R1F/O618